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***San Francisco
Unified School District***



***Operational Audit
School Repair Program***

1988 Proposition A

1990 Proposition B

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JAN 29 1996

UNIVERSITY OF CALIFORNIA

***FINAL REPORT
DECEMBER 1995***

COOPERS & LYBRAND
CONSULTING

January 17, 1996

Mr. Waldemar Rojas
Superintendent of Schools
San Francisco Unified School District
135 Van Ness Avenue
San Francisco, CA 94102

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Dear Mr. Rojas:

Enclosed is the final report of our findings and recommendations based on our operational audit of the school repair program that was carried out with funding from Proposition A, passed in 1988. The repair program was approximately 97% complete as of December, 1994, and was implemented to address life safety, health issues, building envelope integrity, and facility upgrade needs across the District.

Our operational audit focused on organizational needs of the program, management reporting and control, and internal project-related communications, and was performed to determine if improvements could be recommended for the ongoing programs being carried out under Proposition B and the latest Proposition A passed in 1994. This report was not intended to be a financial audit.

We have incorporated into our report the District's response to our recommendations. This response was received January 9, 1996. Although we have completed our work on this operational audit, we remain available to respond to any questions that you may have. We can be reached at 415-957-3259.

Very truly yours,



Martin E. Gilmore
Coopers & Lybrand Consulting



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SAN FRANCISCO UNIFIED SCHOOL DISTRICT

OPERATIONAL AUDIT OF THE SCHOOL REPAIR PROGRAM

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
EXECUTIVE SUMMARY	
Background	1
Objectives of the Review	2
Summary of Findings	
Organizational Needs	3
Reporting Requirements	4
Internal Communications	5
Additional Recommendations	6
OPERATIONAL AUDIT REPORT	
Introduction	10
Organizational Needs	15
Reporting Requirements and Report Development	21
Internal Communications	24
Additional Recommendations	29
Review of Three Sample Schools	41

SAN FRANCISCO UNIFIED SCHOOL DISTRICT

OPERATIONAL AUDIT OF THE SCHOOL REPAIR PROGRAM 1988 Proposition A & 1990 Proposition B

EXECUTIVE SUMMARY

Background

Proposition A, the 1988 General Obligation Bond measure approved by voters for \$90 million, was designed to fund critically needed repairs to San Francisco public schools. Eleven categories of work were targeted originally, including:

- ◆ asbestos abatement
- ◆ roof replacement
- ◆ repair and replacement of lighting and electrical systems
- ◆ window sash replacement
- ◆ site improvements including play structures and yard resurfacing
- ◆ handicap access
- ◆ toilet and plumbing upgrades
- ◆ repair and replacement of heating and ventilation systems
- ◆ exterior painting and waterproofing
- ◆ repair and expansion of libraries
- ◆ repair and upgrade of science laboratories

The original plans and estimates for expenditures of Proposition A funds were described in the Yellow Book. However, shortly after the Yellow Book was prepared, two events occurred which significantly altered the original plans for Proposition A funds. First, the San Francisco Fire Department issued citations for over 2,500 fire/life safety violations in the District's schools and administrative facilities. Proposition A had not included funds to remedy these.

Second, in October, 1989 the Loma Prieta earthquake occurred, creating the need for additional funds to repair the damage and highlighting the need to seismically strengthen a number of District facilities. An unknown percentage of Proposition A funds was used in these repairs and was not fully repaid from other sources. Voters responded to the earthquake by approving

Proposition B, the 1990 bond measure for an additional \$90 million targeted for earthquake repairs, seismic upgrades, fire and safety issues, as well as deferred maintenance. The earthquake also significantly altered the Proposition A expenditure plans because of the damage to schools that had been included in the original Yellow Book plans.

With total repair needs for all SFUSD schools estimated at over \$450 million prior to the earthquake, it was expected that the total money available would cover many serious deficiencies, but leave many schools with unfunded needs. Thus, it became imperative to establish priorities. This was accomplished in part with the Yellow Book estimates which were originally issued prior to the bond passage and used as the benchmark. These estimates proved useful for determining an order of magnitude for the total program, but numerous changes were made on a school-by-school basis, both increasing and decreasing scopes of work.

The Facilities Planning & Construction Group (FP&C) of the SFUSD was charged with execution of the projects funded with Proposition A proceeds. As of December 31, 1994, approximately 97% of the funds from Proposition A had been expended. The School District has now solicited the services of Coopers & Lybrand L.L.P. to conduct an operational audit of the Proposition A program administered through FP&C to evaluate management reporting and control of the program, and to determine if improvements can be recommended for the remainder of the Proposition A & B programs and the latest Proposition A passed in 1994.

Objectives of the Review

Coopers & Lybrand L.L.P. was engaged by the Superintendent in March, 1995 to perform an operational audit of the school repair program carried out with funding from the 1988 Proposition A. The objective was to evaluate management reporting and control of the program and to determine if improvements could be recommended for the ongoing programs being carried out under Proposition B and the latest Proposition A passed in 1994. Our recommendations were to be focused in the following areas:

- ♦ Organizational needs, including any additional resources or skills that would have benefited the project team and could be considered for the ongoing Proposition B and 1994 Proposition A programs
- ♦ Reporting requirements and report development
- ♦ Internal communications among various members of the project teams, program management, and others in the District
- ♦ Any additional controls and procedures that would assist effective management without slowing progress on the program.

Summary of Findings

After an in-depth review of three sample schools and a review of the FP&C project management policies and procedures in general, we found that FP&C performed adequately (average) in their

project management role executing projects funded by Proposition A funds from 1988 through the end of 1994. However, we did notice several weaknesses in project execution. We are confident that corrective action such as implementation of recommendations in this report, roll-out of a new project management software program, and bolstering of personnel skills through the use of outside CM firms will greatly improve the implementation process for current and future projects. We found that many positive things were accomplished with Proposition A funds, and by taking advantage of recommendations such as those contained in this report, the process of managing San Francisco public schools will continue to improve.

Our findings and recommendations are discussed in detail in the body of this report. Our recommendations are summarized as follows:

Organizational Needs

1. Construction at the schools involved in the 1988 Proposition A school repair program was performed primarily on a function-by-function basis, with District Facilities Planning and Construction (FP&C) acting as the general contractor. This required numerous individual design and construction contracts, which increase the costs of design, management, and administration. Of the total money spent through 1994 under Proposition A, \$71.8 million or 73% was attributed to construction costs, \$23.6 million or 24% to design and management costs, and \$2.9 million or 3% to administrative (primarily legal and bond) costs. Other school districts have design, management and administration costs in the 16-18% range. We recommend that the District review its contracting practices for major construction programs. Where feasible and cost effective, construction should be combined under one general contractor at a school undergoing major construction. Alternatively, one specialty contractor could be awarded a contract covering a construction specialty (such as roofing) at a number of schools.
2. Projects actually executed in many cases did not agree with the original Yellow Book project plans. This was because the Yellow Book plans were overtaken by the Fire Department citations for life/safety violations, plus the Loma Prieta earthquake. The Yellow Book was not revised to match the new situation. If a similar situation arises in the future, we would recommend that the program base document such as the Yellow Book should be re-baselined if there are major changes such as the earthquake. For Proposition A, if the Yellow Book had been revised, we believe that much of the confusion regarding project scope would have been reduced.
3. The staff at District FP&C has experienced extensive turnover since the implementation of the 1988 Proposition A Program. We believe that the remaining staff has collective deficiencies in the skills necessary to successfully complete the ambitious Five-Year Implementation Plan. These deficiencies can be overcome with the use of outside construction management firms. Coopers & Lybrand agrees with the Director's decision to use outside CM firms for these critical facilities.
4. Outside architects and engineers were selected based on performance, not price. We recommend that a risk sharing factor be added to the selection criteria for outside architects. For example, a standard currently being used successfully by one District is 2% errors and omissions.

5. We found that communications at the site level among school staff, parents, and the community were disjointed or non-existent, causing a great deal of frustration over construction scope and schedule. We recommend that the District develop a standard approach to communicating prospective and current construction plans and status to individual schools and to the surrounding community.

6. We found a concern from various key individuals that they did not have a single point of contact at each school for the facilities management process. Because they did not have one person to consult with regarding the status or plans for work at a school, they would receive conflicting information about plans and progress. We recommend that one person should be assigned the responsibility to oversee, provide information about, and be the final decision maker on a specific school or group of schools.

7. We did not find a consistent method for assigning priorities to construction work at individual schools, or for making decisions about which work would be performed at which schools. We did find that the District had established overall priorities for categories of work District-wide, so our concern is directed at work at the individual school level. Of the three schools reviewed in detail during this study, two of the schools had actual work performed that was significantly different in total cost to the original Yellow Book plan. We did not find a record of the decisions made to change the overall school budget, or to assign certain work to these schools, or documenting why some work originally budgeted was not performed. We recommend that each work project planned and performed at each school be prioritized in agreement with the overall District priorities, and that decisions about which work is performed at which school be documented so that people understand the reasons why work is performed or not performed at each school.

8. Almost all Proposition A projects were designed using outside architects and engineers. Currently, the District's internal design group takes the lead on smaller, preliminary, or repetitive design-type projects. We recommend continuing the process of designing small, repetitive, and non-structural work in-house. Based on our observations of SFUSD and discussions with other school districts, designing work in-house, especially for non-structural modifications (non-DSA approval work), has saved significant time and money, if the designer is competent. We recommend that the quality of the work being produced by the internal design department be analyzed to determine if they are better suited to design certain types of projects over others.

Reporting Requirements

1. Since Proposition A passed, there have been several status reports issued to the Superintendent and to the School Board; however, we could not readily conclude if projects were on time and on budget, or if moneys budgeted for Proposition A were spent effectively and efficiently. We also heard numerous complaints from key staff and School Board members that they were unsure if the Proposition A funds were spent effectively and efficiently.

This was due to several reasons, including the project management system formerly used by FP&C. The old system did not allow effective tracking of costs on a site by site basis by funding

source. We recommend implementing the recently developed project management system developed by FP&C. We also recommend that a summary report for the construction program be developed and issued monthly. FP&C's project management system is primarily for internal use and should contain all data needed for day to day management of the program. The summary report should be developed with the intent of informing the Board, the Superintendent, and others external to FP&C.

We recommend the following as the minimum requirements for the summary report:

- ◆ Overall comparison of revenues and expenditures
- ◆ For expenditures, a summary of approved budgets and change orders, contracts or costs committed, work performed to date, and forecasts of work to go. For this summary, each school or major work program should be a line item
- ◆ For each school, an expenditure report similar to the above, with line items as needed to show the major work items at the school. Each school report should also include a schedule status, critical or problem areas, and major work to be performed
- ◆ For revenues, a summary of projected amounts by fund type, source of funds available, cash balances, and fund delivery dates.

2. We found that the District has the current practice of using a standard 10% contingency for each construction project. The 10% contingency is used regardless of the type, size, or complexity of the project. We recommend that the District continue to use contingencies when budgeting for and managing design and construction projects. However, we also recommend that the contingency be varied depending on the type, size, and complexity of the project.

Internal Communications

1. We reviewed the Project Execution Flow Chart dated 5/6/94 (See Exhibit A) which is used by the District to show roles and responsibilities of each person involved in the design and construction process for projects completed under Proposition A. We found that the flow chart does a good job of outlining the requirements; however, it is unclear if there is a single point of contact throughout each step of the process (i.e. Project Manager), who are the primary and secondary responsible parties at each step, the sequential timing of each step (and if some of them can be done concurrently), and if it is used as a basis for tracking projects to ensure compliance. We recommend that the flow chart be expanded to include an accompanying Project Procedure which details each step along the chart. Also, we recommend the development of a Project Manager's Manual which should include how the flow chart can be used on each project as a guide to successful completion.

2. We found several instances where communications were not clear between the FP&C and the B&G departments. We recommend a more coordinated effort between FP&C and B&G in the future. This could be handled via a flow chart and guideline procedure similar to that described above showing the roles and responsibilities of each department.

3. The initial design review occurs prior to the formal design documents during the site assessment phase. 1A Diagrams showing the general layout of a school, including all additions and deletions, are the initial important documents. Our preliminary review of the 1A's showed that these are not being kept current and updated as changes are made. The accuracy of 1A's and as-builts is an important contributor to the overall accuracy of new design details. We recommend improvements to the A1 and as-built drawing files by assigning one person to that function and ensuring that they are updated after each project. We also recommend a regular review of the files by B&G to ensure that their changes are also incorporated. We recommend more detailed site surveys be conducted utilizing checklists to ensure full coverage. To ensure that the District receives accurate as-builts, we recommend that prior to the monthly pay request, the inspector should review and sign-off that as-builts are being kept current per specifications.
4. We noted that the PM would ensure an internal review of drawings and specifications by issuing a memo to various reviewers; however, we did not notice a sign-off or review by the school principal or an independent third party (peer review or constructability review). We recommend that the design review process included in the FP&C Project Flow Chart be followed, and should be updated to include review and sign-off by the school principals for projects that have major school impact. For minor projects or projects that are being performed in accordance with District standards, the principal should receive project descriptions for information. All large projects should include a peer review of the plans and specs, mainly for coordination checks. We also recommend a constructability review be performed by an independent contractor or construction management firm for major or complex projects.
5. Requirements to send plans to the State for review is inconsistent and confusing to many FP&C staff members. We recommend that FP&C issue a formal procedure to all staff members to alleviate the internal confusion.

Additional Recommendations

1. We found concerns from various key individuals regarding the role and effectiveness of the Citizen's Advisory Committee (CAC). The concerns focused on how to improve its involvement and increase its effectiveness. We recommend that the role of the CAC be reviewed and redefined if necessary so that the Committee has a renewed sense of their role. The most successful CAC's at a statewide or national basis tend to be involved in global program issues.
2. SFUSD does not have a strict contractor prequalification process - the only requirements are to be bondable, insurable, agree to pay prevailing wages, and be responsive. We recommend prequalifying general contractors and specialty contractors for frequently performed work based on past performance and financial strength. Prequalified contractor lists would be used to obtain bids where possible, but especially for large or complex projects. As part of the bidding process, we also recommend mandatory attendance at pre-bid meetings which includes a site walk.
3. We found an extended warranty option (3 years instead of 1) issued by the mechanical subcontractor for heater installation to be a good investment at the individual schools we studied.

We recommend that the District consider extended warranties or maintenance options for most major equipment items, if it is cost-effective.

4. Most project teams reviewed the Request for Clarification (RFC) logs during weekly review meetings which we agree is a good policy. In analyzing the contents of the RFC's, it was our finding that most of the RFC's were appropriate and genuine clarification requests from the contractor; however, we did not believe that all of them had to be forwarded to the A/E for answer. While most RFC's were turned around in a few days, we noticed some that were delayed for over a month. We found that, for the most part, the PM's simply acted as a conduit to the technical staff instead of attempting to answer the RFC's themselves. We also noted that most of the RFC logs were handwritten and did not always contain key information. We recommend that responses to all RFC's be given in no more than 7 days. The PM's should have the skill to search contract documents and resolve many of the RFC's, rather than forwarding all RFC's to the A/E, and we recommend that this be incorporated into the Procedures Manual that the District should prepare. While manual logs are acceptable, we believe that a computerized version is easier to control and update.

5. We noted that the District's change proposal form contains check boxes to enable each potential change order to be originator-identified; however, this box was checked less than 20% of the time. When a change proposal becomes a change order, the PM fills out a change order summary page that states the reason for the change; however, we noted that most statements were vague as to the cause of the change and we were not able to determine which party was responsible. Most change orders were handled internally at FP&C without going to the Board for approval. We also noticed that potential change orders were not resolved in sequence. We did not find a formal procedure to finalize the cost of change orders. We recommend that all change orders be identified as to responsible party, and that the reason for the change be documented. We recommend that each potential Change Order be numbered and resolved in order, and that change order resolution include as assessment of the impact on project schedule. We recommend that the change order approval process be held to strict time deadlines so that the contractors do not have to work without formal review or approval. We also recommend that minor change orders be approved by the Project Manager without further review; the District can define "minor change orders" based on the size and complexity of the project.

6. Contractor payment requests were submitted to the PM and Inspector for verification and approval usually using the contractor's payment request form. While we do not believe that it is necessary to insist that contractors utilize a standard District payment request form, we do believe that the PM's should review the contractor's format with their finance/accounting staff prior to initial issuance and ensure that it contains all required information.

7. We noticed several instances where the inspector sent back a contractor's payment application because he felt the percent complete was overstated. However, in most cases, the Schedule of Values (the breakdown of the work for billing purposes) was inadequate and in some cases, only one item, i.e. the total value of the contract was shown. Overstatement of percent complete usually occurs because the Schedule of Values is front-end loaded or does not accurately reflect the scope or timing of the work. The Schedule of Values should be tied to the contractor's

schedule. We recommend that, at a minimum, the contractors are required to break the work down into 3-10 items for proper verification.

8. While contractor schedules were found in the files, the formats and information details varied widely. We recommend that the contract documents clearly spell out the scheduling requirements and they must be enforced monthly. Monthly progress payments should be tied to successful completion of these requirements.

9. We found liquidated damage (LD's) clauses in every major contract. However, we did not find a single case where the contractor was found to be deficient in his contractual duties and the LD's were enforced. We recommend that liquidated damage provisions in contracts be enforced, or at least used in negotiations with contractors who are late in completing their work.

10. We found numerous complaints from various parties (inspectors, other general contractors, union officials, architects, etc.) of violations by contractors regarding the payment of prevailing wages. We recommend a review by the District to ensure that certified payrolls are submitted and that prevailing wages are being paid.

11. There is confusion regarding the role, responsibility, and reporting lines for the Inspectors. We recommend that the Inspectors report to the Design Department within FP&C, not the project management group.

12. The architect of record did not always visit the site on a weekly basis and relied heavily on the inspectors. Because of this lack of direct knowledge of the construction process, the inspection reports were often "rubber stamped" by the Architects. We recommend that the architect of record should visit the site on a minimum of a weekly basis to tour the site and be present at the weekly construction meeting.

13. We found that substitution requests (and their potential impact on the "quality" of the final product) take up a great deal of time during construction administration. We recommend that SFUSD develop a formal, tough substitutions policy similar to the following:

1. Bid specifications should clearly state that all substitution requests must be submitted to the owner/architect for review and approval no later than the first 10% of the contract time (i.e. 20 days for a 200 day project).
2. A substitution request form needs to be prepared. On this form the contractor must clearly state what advantage approving the requested substitution has for the owner. The advantage could be financial and/or better product.

14. We found that the procedures and policies concerning standard design specifications for items such as windows, doors, locks, painting, etc. are not clear to all parties. We recommend that the District review and clarify their standard specifications. The B&G Department should take the lead in establishing District established specified products and acceptable alternatives when appropriate, since they are the recipient of the constructed facility.

15. We found instances of projects being accepted by all parties only for the school principal to discover defects in construction that were not discovered during the final inspection and acceptance procedure. We recommend that the District adopt the final acceptance and approval procedures as outlined in the AIA General Conditions.

16. We found that contractors met their contractual obligations by turning over O&M manuals, as-built drawings, warranties, and lien releases; however, the information often does not end up where it will do the most benefit. We recommend that contractors provide sufficient copies of the O&M manuals and warranties to allow a set at the school.

17. There is currently no requirement for a final job report by the District. We recommend that the PM prepare a final job report on all significant jobs including a "lessons learned" section.

18. The current B&G group at SFUSD is comprised of a number of craft specific shops, such as electrical, sheetmetal, mechanical and plumbing, carpentry, and painting,. Another group is responsible for hazardous materials detection and mitigation. These shops are frequently engaged to work on smaller projects where it is not practical or economical to bid the work to outside contractors. Among the Proposition A work categories, B&G staff has been particularly involved in heating projects, electrical work, and toilet repairs. We recommend a separate analysis of the B&G group. The analysis should include the prospect of a long-term (5 year) maintenance and operation plan for each school. While our preliminary investigation found that B&G does have an existing plan and strategy, it needs revision and updating.

SAN FRANCISCO UNIFIED SCHOOL DISTRICT

OPERATIONAL AUDIT OF THE SCHOOL REPAIR PROGRAM 1988 Proposition A & 1990 Proposition B

I. INTRODUCTION

School Repair Program Overview

The average age of the 142 operating schools and child care centers in the San Francisco Unified School District (SFUSD) is 45 years, with 10 schools over 65 years old. In 1988, a study showed that over \$450 million would be required to modernize these facilities. The voters in San Francisco responded by approving Proposition A in 1988, a \$90 million bond issue to fund the most urgent school repairs at 128 schools. This was followed by Proposition B, an additional \$90 million bond issue that was passed in 1990 and provided money for earthquake repairs.

Proposition A was designed to fund basic repairs such as outdated and deteriorated restrooms, windows, roofs, walls, heating systems, and electrical wiring. In all, eleven categories of work were targeted originally. However, the original program included a number of categories such as library expansions and science labs, which, while important, were not essential to student safety or building integrity. The original categories addressed by the program included:

- ◆ asbestos abatement
- ◆ roof replacement
- ◆ repair and replacement of lighting and electrical systems
- ◆ window sash replacement
- ◆ site improvements including play structures and yard resurfacing
- ◆ handicap access
- ◆ toilet and plumbing upgrades
- ◆ repair and replacement of heating and ventilation systems
- ◆ exterior painting and waterproofing
- ◆ repair and expansion of libraries
- ◆ repair and upgrade of science laboratories

Almost immediately, it became apparent that a twelfth work category, fire and life safety improvements, was required. Specifically, the San Francisco Fire Department cited the District

for many outstanding violations which needed to be rectified immediately. Following receipt of the citations, the work categories were prioritized as follows:

Priority I

1. Fire Department Citations

Priority II

1. Asbestos abatement
2. Heating/ventilation upgrades
3. Toilet/plumbing upgrades

Priority III

1. Roof replacement
2. Window sash replacement
3. Exterior paint
4. Electrical upgrade
5. Site improvement
6. Handicap access
7. Science lab upgrades
8. Library improvements

District staff then developed a system of prioritizing individual sites by weighting such factors as building age, building capacity, current enrollment and recent major repairs or reconstruction. Staff then physically re-surveyed the sites and, based on test findings, made minor revisions to the work plan and refined the cost estimates for specific repairs. For each type of project, a range of per-square-foot unit costs was determined based on the District's experience with similar projects. The "hard" construction cost was calculated by applying the estimated unit cost to the actual building area of the site for which the work was planned. To this was added 30% to cover "soft" costs which included architectural and engineering fees, testing and inspection services, District administrative costs and a 5% construction contingency.

The result was a series of schematic planning estimates known as the Yellow Book estimates, which were included in the bond campaign documentation (and thus became the basis of program budget comparisons). These estimates proved useful for determining an order of magnitude for the total program, but were not particularly accurate on a project-by-project basis. There were no initial schedules established in the Yellow Book.

The Yellow Book program identified as critical \$90 million of repairs out of the estimated total of \$450 million required to remedy all facilities problems. Funds available from other sources over

the ensuing five years were estimated at \$67 million, leaving an unfunded need of \$293 million. Thus, Proposition A was characterized as the first phase of an ongoing capital improvements program which would require additional financing within three to five years. Before the Proposition A work progressed very far, the combination of the Loma Prieta earthquake and the citations from the San Francisco Fire Department caused major changes in the priorities and work scope performed with Proposition A money.

The original \$90 million proceeds from Proposition A (bond principal) grew to approximately \$101.5 million including interest received on the invested fund principal from July, 1988 to December, 1994. Through December 31, 1994, \$98.4 million had been spent leaving a balance of \$3.1 million.

Objectives of the Review

Coopers & Lybrand L.L.P. was engaged by the Superintendent in March, 1995 to perform an operational audit of the school repair program carried out with funding from the 1988 Proposition A. The objective was to evaluate management reporting and control of the program and to determine if improvements could be recommended for the ongoing programs being carried out under Proposition B and the latest Proposition A passed in 1994. Our recommendations were to be focused in the following areas:

- ◆ Organizational needs, including any additional resources or skills that would have benefited the project team and could be considered for the ongoing Proposition B and 1994 Proposition A programs
- ◆ Reporting requirements and report development
- ◆ Internal communications among various members of the project teams, program management, and others in the District
- ◆ Any additional controls and procedures that would assist effective management without slowing progress on the program.

Review Methodology

During our review, we performed the following tasks:

- ◆ We examined the Proposition A Status Report dated December 31, 1994, and its supporting documentation. We reviewed report development, reporting cycles, and use of the Status Report for program control. Subsidiary reports that were used for program management were also be reviewed
- ◆ We reviewed the procedures used for obtaining bids, selecting contractors and other service providers, contract approval and award, and approvals of changes made after contract award. As part of this step, we examined the delegation of authority at various stages in the contracting cycle

- ◆ Because the program is almost complete, we reviewed the use of project close-out procedures. Steps included testing for such items as the existence and use of close-out procedures or checklists, architect documentation, issuance of Certificates of Substantial Completion, management of punchlist work, that Consent of Surety forms have been obtained, and any Board actions signifying District acceptance of completed work
- ◆ We examined the basis for fees for architects and other providers of professional services. Where these fees were based on a percentage of the constructed value of a project, we determined the effectiveness of the fee reconciliation procedures that were used
- ◆ We reviewed the invoice receipt and approval process to ensure that approvals were documented and that payments were being made in a timely manner.

To provide another perspective on management of the Proposition A funds, we performed an in-depth review of the management and expenditures at three individual schools. The schools chosen were Commodore Sloat Elementary (small project), Benjamin Franklin Middle School (medium project), and Balboa High School (large project). These provided further understanding of the processes and procedures used for this program. Our key work steps for the review of the three schools were:

- ◆ Interviewed key individuals responsible for managing each project
- ◆ Reviewed contracts for the architect and other professional service providers, including basis for award, fee basis, and changes that have occurred during the project
- ◆ Examined construction contracting, including pre-bid activities, bidding and award of contracts, contract management, and closeout
- ◆ Examined project data, including project budget, detailed schedule, reports of progress and costs to date, and cost forecasts
- ◆ Compared the initial schedule for construction with the achieved schedule
- ◆ Reviewed systems in place at the individual school project level to support project reporting, communication, and control
- ◆ Examined procedures for identifying changes to the work, determining the cost of changes, and reaching decisions regarding the need for the change
- ◆ Developed this Draft Report including preliminary findings and recommendations and reviewed the draft report internally at C&L
- ◆ Issued this Draft Report for your review and comment.

Citizen's Advisory Committee (CAC)

Once Proposition A passed, the Superintendent appointed a Citizen's Advisory Committee (CAC) to oversee implementation of the program. (Subsequently, members of the CAC have been appointed by the Board of Education.) The CAC has been involved in the Proposition A process,

including assistance with the prioritization process, through regular meetings with Staff, studying specific issues, and making recommendations for improvement. For example, it was the CAC that recommended development of a new five-year Capital Asset Management Plan to take advantage of lessons learned during the program evolution.

A CAC report issued March 1, 1994 made a number of recommendations for the school repair program. Several of the recommendations have been enacted, and we have expanded the ideas behind several of their other recommendations in our report. Key recommendations from the CAC report include:

- ◆ Create and execute a deferred and scheduled maintenance program
- ◆ Review contract and inspection process to see that controls are incorporated to ensure accountability. This includes timely inspections, adequate staffing (including the area of contract compliance), interim milestones for completion of elements of projects and strengthening responsible bidding procedures
- ◆ Look at use of information systems in private construction to better provide information about facility projects
- ◆ Complete an updated capital asset management plan which includes optimal space utilization, demographics and educational goals
- ◆ Improve communication among School Board, Superintendent, CAC, facilities staff, and school sites regarding facilities plans and repairs
- ◆ Improve public understanding regarding the scope of work that could be accomplished using Proposition A money. Proposition A was for \$90 million and estimate of total district repair needs in 1988 was \$450 million
- ◆ Review and recommend procedures relating to the Office of the State Architect to make procedures more cost effective, less time consuming, and less cumbersome.

II. ORGANIZATIONAL NEEDS

1. Reduction of District management costs

Finding: Construction at the schools involved in the 1988 Proposition A school repair program was performed primarily on a function-by-function basis along the lines of construction management, with Facilities Planning and Construction (FP&C) acting as the general contractor. This involved numerous individual design and construction contracts for functions such as asbestos removal, door and window replacement, toilet upgrades, painting, and other contracts. The exceptions were the Leroy Greene contracts, which were awarded to one general contractor for all work involved at a school, and in certain cases for Proposition A work where several construction functions were combined into one contract, such as Arntz Builders (their roof replacement contract included other functional items also) at Commodore Sloat.

One view of this multiple contract approach is that the District incurred savings by contracting directly with subcontractors and not using general contractors. By going directly to the subcontractors, FP&C is saving the general contractor's fees. However, a general contractor would be writing and administering the subcontracts, and for Proposition A construction much of this administration cost was borne by the District. For example, at Balboa, the District has written 72 separate contracts from 1988 to the present, including a \$260 contract to Executone Info Systems, a \$350 contract to E.P. Finigan (volleyball equipment), a \$9,960 contract to Myron Demolition (bungalow demo), a \$2,150 contract to J. Smith (replace office floor), in addition to the larger contracts for window replacement, toilet upgrades, and site improvements.

Of the total money spent through 1994 under Proposition A, \$71.8 million or 71% was attributed to construction costs, \$23.6 million or 23% to design and management costs, and \$2.9 million or 3% to administrative (primarily legal and bond) costs. As a comparison, at the end of 1993, \$69.7 million or 75% was attributed to construction, \$21.4 million or 23% to design and management, and \$2.2 million or 2% to administrative costs. It appears that the District is paying a significant premium for design and management of construction. Also, as the level of construction activities decreased through 1994, the design, management, and administrative costs grew as a percentage of the total costs, which is not cost effective for construction.

Recommendation: We recommend that the District review its contracting practices for major construction programs such as the Proposition A/Proposition B school repairs. Where feasible and cost effective, construction should be combined under one general contractor at a school undergoing major construction. Alternatively, one specialty contractor could be awarded a contract covering a construction specialty (such as roofing) at a number of schools.

The question for the District related to cost efficiency is "when is it more economical to write and administer contracts internally, as opposed to allowing general contractors to do that for us?" It is a difficult question to answer involving risk acceptance/avoidance, local general contractor and subcontractor capabilities, the ability to buy from suppliers directly and use subcontractors as installers, and other related issues.

With the recent decision to use outside Construction Managers (CMs), the District can use the CMs either to make contracting plan recommendations to the District, or to contract directly with the subcontractor.

We recommend that the decision be made on a case by case basis after a firm scope of work is established, along with defined bid packages and construction sequencing. We also recommend that the District review its management costs incurred during the completion of Proposition A, with the intent of reducing the percentage of money spent on design and management as the work is nearing completion.

***District Response:** Implementation of the 1994 School Building Program is being carried out in a manner consistent with this recommendation. The current program is being managed primarily through prime contracting with minor trade contracting where feasible. Under the current program, the District expects to reduce administrative costs and construction impact time at each school site.*

2. Use of outside Construction Management firms

Findings: The staff at District FP&C have experienced extensive turnover since the implementation of the 1988 Proposition A Program. We believe that the remaining staff has collective deficiencies in the skills necessary to successfully complete the ambitious Five-Year Implementation Plan. The Director is reviewing current members of the internal Project Management staff to determine whether they are capable of implementing the remainder of the Plan. Also, the FP&C Group is going through a series of organizational changes instigated by the new Director of the Group who started in October, 1994.

One of the changes involves bringing in three outside Construction Management firms (Vanir CM, 3DI, and Don Todd & Associates) to provide project management of 33 schools scheduled for completion during the first phase of the New Five-Year Implementation Plan. The outside CM firms are responsible for all phases of project delivery, including coordination of project architects to develop preliminary designs, final plans and specifications, value engineering studies, constructability review, bidding of contract documents and all phases of construction, including contractor oversight, change order review, schedule review, cost control, and project close-out.

Recommendations: Coopers & Lybrand agrees with the Director's decision to use outside CM firms for these critical facilities. The three firms selected all have recent, extensive school facility planning and construction experience, thus there will be a minimal learning curve involved in the overall process. These firms will supplement the current skills available in the FP & C group, will provide information on the current practices of the construction industry, and will be capable of improving the status reporting for the school repair program. They will provide supplementary staffing and skills to assist with the increased work load caused by the school repair program, then will leave when the repair program is complete. Based on our review of this program, we would have recommended the use of outside construction managers if the District was not already moving in that direction.

As a guide to assist with the increasing use of construction managers by school districts, the Office of the Regulation of Schools/Department of the State Architect (ORS/DSA) has issued a document entitled "Interpretation of Regulations - Construction Management Procedures for Public School Projects". We recommend that SFUSD obtain and use this guide.

3. Risk sharing by A/E's

Finding: Outside architects and engineers were selected based on performance, not price. Evaluation criteria included previous school experience, previous experience with repair/reconstruction, ethnic ownership of firm, experience of project manager, proposed approach, access to SFUSD, ability to design to a budget, current workload, construction review capabilities, and other criteria. Risk sharing for architect errors was not part of the basis for selection.

Recommendation: We recommend that a risk sharing factor be added to the selection criteria for outside architects. For example, a standard currently being used successfully by one District is 2% errors and omissions. It works as follows: Each change order is reviewed to determine why it was required: is it an agency change (i.e. fire codes, DSA., etc.), owner change (i.e. additional zones for HVAC coverage, etc.), or an error or omission by the designer? The E&O items are tracked and when the total exceeds 2% of the contract amount, the architect pays for the total cost of the change. To minimize losses, architects will sometimes attempt to blame others rather than take responsibility. When responsibility is unclear, the district can bring in a neutral architect to make the determination. It is best not to wait until the number of change orders piles up, but to establish responsibility for each one as it is approved.

District Response: *This recommendation has been implemented. all A/E contracts approved by the board after November 1994 include a risk-sharing factor of 2%.*

4. Site Communications

Finding: We found that communications at the site level among school staff, parents, and the community were disjointed or non-existent, causing a great deal of frustration over construction scope and schedule.

Recommendation: We recommend that the District develop a standard approach to communicating prospective and current construction plans and status to individual schools and to the surrounding community. For example, principals should receive information routinely regarding their schools, and articles dealing with the construction scope and schedule could be written on an occasional basis and placed in the local newspapers of each school. Also, short project bulletins concerning major events (i.e. use of a large crane to hoist equipment on to the roof, attainment of a major milestone, etc.) should be issued throughout the construction process.

District Response: *All communication systems and processes within the organization are undergoing some improvements or enhancements. The new*

1994 School Building Program has made a significant effort to involve the site users at all levels of the project including architect selection and attendance at community meetings.

5. Single Point of Contact

Finding: We found a concern from various key individuals that they did not have a single point of contact at each school for the facilities management process. Because they did not have one person to consult with regarding the status or plans for work at a school, they would receive conflicting information about plans and progress.

Recommendation: We believe that one person should be assigned the responsibility to oversee, provide information about, and be the final decision maker on a specific school or group of schools. This is a proven method in the construction industry that assists in achieving a successful project. It is important that the person have the authority to make decisions regarding the construction project. School principals, FP&C staff, and others directly involved in the Proposition A repair program or in any other major construction program should have a reference list of responsible parties for each school construction project.

***District Response:** This problem was primarily associated with the previous project delivery system. A school site could have multiple active projects, managed by multiple project administrators, and being performed by multiple trade contractors simultaneously. The new project delivery system minimizes the number of active projects and consolidates accountability to a person or team of individuals that e fully responsible for the execution of the project.*

6. Assignment of Priorities

Finding: We did not find a consistent method for assigning priorities to construction work at individual schools, or for making decisions about which work would be performed at which schools. We did find that the District had established overall priorities for categories of work District-wide, so our concern is directed at work at the individual school level. We found a great deal of concern by various key individuals regarding priorities being assigned on the basis of the needs of the schools or the source of funds. Of the three schools reviewed in detail during this study, two of the schools had actual work performed that was significantly different in total cost to the original Yellow Book plan. We did not find a record of the decisions made to change the overall school budget, or to assign certain work to these schools, or documenting why some work originally budgeted was not performed.

Recommendation: We recommend that each work project planned and performed at each school be prioritized in agreement with the overall District priorities, and that decisions about which work is performed at which school be documented so that people understand the reasons why work is performed or not performed at each school. Because of the sensitivity that many parents have about the schools that their children attend, it is important that decisions be made in agreement with overall District priorities, then documented for the individual schools. Regardless

of the number of schools involved, priorities must be established by using both school needs and source of funds. Obviously, any issues dealing with life safety must have priority and consume the initial available funds.

District Response: *The assignment of priorities for building improvements was realigned based on the facilities needs assessment developed in 1992/1993. The Capital Assets management plan tracks needs, funds and improvements whereby needs are reduced at each site as repairs take place.*

7. Internal vs. external A/E's

Finding: Almost all Proposition A projects were designed using outside architects and engineers. Currently, the District's internal design group takes the lead on smaller, preliminary, or repetitive design-type projects. The internal design group was charged with reviewing and overseeing the outside architects. The engineers reported to the architects except where surveying to document existing conditions was required and where industrial hygienists were needed to address asbestos abatement.

Currently, the decision to design a project in-house or use an outside architect/engineer is made by the Director of Facilities on a project by project basis. For singular, repetitive design projects (i.e. adding new bathrooms or windows), the design and engineering will normally be done internally. For multi-discipline projects or those involving a lot of coordination with specialized engineers, the decision is normally made to use an outside architect. The current workload of the internal design department is also crucial in the decision making process. The decision to use internal or outside engineers is similar. There are projects that use internal architects and outside engineers and vice-versa.

Recommendation: We recommend continuing the process of designing small, repetitive, and non-structural work in-house. Based on our observations of SFUSD and discussions with other school districts, designing work in-house, especially for non-structural modifications (non-DSA approval work), has saved significant time and money, if the designer is competent. The advantage of performing design work in-house is that the internal designers should know the District's typical design and specification details, thus turnaround time and accuracy are usually superior.

We recommend that the quality of the work being produced by the internal design department be analyzed to determine if they are better suited to design certain types of projects over others. The quality of the product can be determined in part by the number of RFI's from contractors, the number of change orders caused by errors and omissions, problems found in peer reviews or constructability reviews by others, time required to develop design details, and other relevant measures. This information could then be used to assist in the decision making process.

District Response: *The current system for selection of an in-house or the use of an outside architect/engineer to complete design work on any project is based on the following three factors:*

- ◆ *Complexity of the project*
- ◆ *Current workload of in-house staff*
- ◆ *Number of different trade disciplines involved*

At this time, the department allows the designing of small, repetitive, and non-structural work to be completed in-house. The District anticipates the completion of an internal review of the in-house design department within the current fiscal year. This information will then be used to determine the particular types of small, repetitive, and non-structural projects that in-house staff may not be suited to design.

III. REPORTING REQUIREMENTS AND REPORT DEVELOPMENT

1. Status Reports

Finding: Since Proposition A passed, there have been several status reports issued to the Superintendent and to the School Board including:

1. Proposition A Status Report, issued annually in June and December, by FP&C. This report includes a one-page summary of proceeds and expenditures, a one-page summary of planned (Yellow Book) vs. actual costs by work category, a detailed site by site analysis comparing the Yellow Book Assessment against to-date Project Costs, and a Project Status Summary detailing contract information for each site.
2. First Phase Report, Proposition A, 1991, by CAC. This 20 page pamphlet includes work accomplished pictures, quotes from CAC members, an overall summary report, and a Summary of Expenditures to-date.
3. Proposition A/B Committee Report dated 3/1/94, issued by the CAC. This report was not as formal as the 1991 Report. It did not contain pictures or specific comments from Committee members, however, it was approximately 200 pages long including an overall 10 page summary of the propositions delineated by background, accomplishments, CAC actions, and recommendations, separate Proposition A and B Status Reports, and maps of San Francisco showing the individual sites where each category of work was accomplished.

During our review, we found the reports to contain a great deal of information; however, we could not readily conclude if projects were on time and on budget, or if moneys budgeted for Proposition A were spent effectively and efficiently. Also, in spite of these reports, we heard numerous complaints from key staff and School Board members that they were unsure if the Proposition A funds were spent effectively and efficiently.

This was due to several reasons, including the project management system formerly used by FP&C. The old system did not allow the effective tracking of costs on a site by site basis by funding source. Further, the repair work performed at each site under the old program was performed in a piecemeal fashion over several years utilizing several contractors for different categories of work. Also, insufficient predesign and construction surveys were performed resulting in unforecast costs for such items as asbestos removal, door and window sash replacements, kitchen improvements, and other items.

We analyzed the new project management system that was recently rolled out by FP&C and contained in the Capital Assets Management Plan (CAMP) and the 1994 Proposition A Implementation Plan. It was developed with input from a leading Bay Area general contractor and corrects most of the deficiencies from previous reports. For example, it utilizes a budget-specific concept which identifies and earmarks funding sources for building improvements at each school, which we regard as a major improvement. Detailed, walk-through surveys were conducted at each school in 1993 and this information resulted in a total facility need for each

school, which again, is a major improvement. The project management system also includes improvements in the contingency budgeting and allocation process, cost control, and scheduling.

Recommendations: We recommend implementing the recently developed project management system developed by FP&C. We believe that this will substantially reduce the number of concerns about accurate reporting of information and answer most of the questions that were raised by concerned parties during our interviews.

We also recommend that a summary report for the construction program be developed and issued monthly. FP&C's project management system is primarily for internal use and should contain all data needed for day to day management of the program. The summary report should be developed with the intent of informing the Board, the Superintendent, and others external to FP&C who are responsible for overall status and are not involved in the daily operations of the construction program.

The summary report should extract data from the project management system if possible so the information is consistent. The summary report should provide data by school or by major work function, rather than by contract or by work order. We recommend the following as the minimum requirements for the summary report:

- ◆ Overall comparison of revenues and expenditures
- ◆ For expenditures, a summary of approved budgets and change orders, contracts or costs committed, work performed to date, and forecasts of work to go. For this summary, each school or major work program should be a line item
- ◆ For each school, an expenditure report similar to the above, with line items as needed to show the major work items at the school. Each school report should also include a schedule status, critical or problem areas, and major work to be performed
- ◆ For revenues, a summary of projected amounts by fund type, source of funds available, cash balances, and fund delivery dates.

***District Response:** The Project management Cost Accounting System, implemented this year, tracks needs, funds and improvements. Useful and accurate information regarding project costs, funds, needs, revenues and expenditures can be provided at this time. the department continues to work on various report and summary report formats.*

2. Contingency

Finding: We found that the District has the current practice of using a standard 10% contingency for each construction project. The 10% contingency is used regardless of the type, size, or complexity of the project.

Recommendation: We recommend that the District continue to use contingencies when budgeting for and managing design and construction projects. Contingencies are required because of the uncertainty of any construction project. However, we also recommend that the contingency be varied depending on the type, size, and complexity of the project. Factors to be considered when assigning contingencies include:

- ◆ New construction or renovation - generally, renovations require higher contingencies due to the potential of discovering different conditions as the renovations proceed
- ◆ Completeness and quality of plans and specifications
- ◆ Schedule required for completion
- ◆ the District's prior experience with the contractor

We recognize that 10% contingency is the standard often used as a starting point when assigning contingency for construction projects. However, contingency can be as low as 3% for new construction being bid with complete plans and specifications, and can exceed 15% for complex renovations or restoration. In addition, contingencies should be higher in the early stages of project planning, before plans and specifications are finalized.

District Response: *This recommendation has been implemented. In addition to the standard 10% contingency for renovation projects, the District currently requires a 5% contingency for new construction. Any variations in the contingency on a project, depending on the type, size, and complexity must be approved by the Director of Facilities Planning and Management Operations.*

IV. INTERNAL COMMUNICATIONS

1. Project Execution Flow Chart

Finding: We reviewed the Project Execution Flow Chart dated 5/6/94 (see following page) which is used by the District to show roles and responsibilities of each person involved in the design and construction process for projects completed under Proposition A. We found that the flow chart does a good job of outlining requirements; however, it is unclear if there is a single point of contact through each step of the process (i.e. Project Manager), who are the primary and secondary responsible parties at each step, the sequential timing of each step (and if some of them can be done concurrently), and if it is used as a basis for tracking projects to ensure compliance.

Recommendation: We recommend that the flow chart be expanded to include an accompanying Project Procedure which details each step along the chart. Also, we recommend the development of a Project Manager's Manual which should include how the flow chart can be used on each project as a guide to successful completion.

***District Response:** All communication systems and processes within the organization are undergoing some improvements or enhancements. The new 1994 School building Program has made significant steps toward minimizing the number of active projects and consolidating the accountability for these projects, to a person or team of individuals that are fully responsible for the execution of the project.*

We are currently reviewing and expanding the flow charts and procedures to reflect current practices. The development of a project manager's manual and the incorporation of the expanded flow charts into that manual will continue to assist this department in the successful completion of projects.

2. Coordination between FP&C and B&G Departments

Finding: We found several instances where communications were not clear between the FP&C and the B&G departments. For example, in one interview, we heard of a situation where windows were replaced by B&G in one year, then the following year all the windows were replaced (including the recently replaced windows) under an FP&C modernization contract. Also, FP&C continues to coordinate warranty work after construction while at the same time, B&G are responsible for maintenance and operation. This creates confusion, especially from the principals of the individual schools.

Recommendation: We also recommend a more coordinated effort between FP&C and B&G in the future. This could be handled via a flow chart and guideline procedure similar to that described above showing the roles and responsibilities of each department.

DESIGN PHASE

To select consultant from the list provided by A/E

A/E to provide design guideline
Review 50% and 100%

CONSULTANT

Initiation of Project

- o Preliminary Scope of Work, copy B&G
- o Schedule
- o Budget set-up
- o Contact ACP for hazardous materials impact.

- o Log in Project
- o Review of Project
- o Final Scope of Work
- o Decide in-house vs. consultant

IN HOUSE

- o Coordinate within Technical Service
- o Submit 75% design documents to ACP, B&G and F/L Safety for review
- o Copy transmittal letter to PM.
- o Incorporate comments and issue final design documents

- o Submit final design documents with comment sheet, Technical Service section sign-off & project release sheet to PM for advertisement.
- o Log out project.

Before Advertisement of Project

- o Obtain section sign-off from ACP, B&G, A/E & F/L Safety, copy to A/E, ACP
- o Coordinate with ORS (if required)
- o Prepare bid date worksheet
- o Prepare invitation for bid, copy to A/E, ACP
- o Advertisement project
- o Act as district contact person

INSPECTOR

IND. MONT.

CONTRACTOR

- o Submit schedule of value & construction schedule to PM; copy to A/E
- o PM demands revised/updated construction schedule if any, copy to A/E
- o Submit submittals to PM for A/E review and approval
- o Submit RFI to PM for A/E reply
- o Submit contract payment request to PM, A/E signature is necessary

After project awarded

- o Issue HTP, copy to A/E, ACP, B&G
- o Conduct pre-construction conference
- o Invite A/E, ACP, B&G & Inspector to attend

After bidding period

- o Recommend awarding project

During bidding period

- o Conduct pre-bid conference
- o Invite A/E, ACP to attend
- o A/E, ACP will answer questions in the conference or issue addendum to PM, if any
- o Forward addendum to prospective contractors
- o Consider potential cost increases due to addendum
- o Secure additional funding for the addendum, if necessary
- o Contact ACP for hazardous materials impacts, prior to issuing addendum

CONSTRUCTION PHASE

- o Initiate & conduct walk-thru

CHANGE ORDER PROCESS INITIATED BY

A/E

PM

INSPECTOR

CONTRACTOR

B & G

ACP

A/E = SFUSD Architect/Engineers Consultant - Outside Architect/Engineer

IM - Industrial Hygienist

NOTES:

For projects designed by consultant substitute A/E for consultant with a copy to A/E. At project close-out process A/E shall mean CONSULTANT and IN-HOUSE (A/E).

- o Prepare, process & issue Change Order
- o Obtain price proposal from contractor
- o Submit Change Order & proposal to A/E for review, A/E signature is necessary
- o ORS coordination (if required)

A/E

PM

INSPECTOR

CONTRACTOR

B & G

SITE ADMINISTRATOR

Finalize walk-thru PM/INSPECTOR

Project close-out process

PM

- o A/E review as-built drawings and all maintenance manuals
- o Warranty documents received
- o Prepare final payment recommendation, A/E signature is necessary
- o ACP signature is necessary, if ACP's work is involved.

REV. 5/6/94

PROJECT EXECUTION FLOW CHART

SFUSD

Facilities Planning & Construction
San Francisco Unified School District
1881 Newcomb Avenue
San Francisco, California 94124
Telephone (415) 895-6500

JOB NUMBER

SHEET

SCALE NONE

SK-1

DATE

DRAWN BY S.B.A.

District Response: *This recommendation is currently being implemented. We anticipate the creation of a process flow chart and procedure guideline within the current calendar year.*

3. Design Review Process - 1A's and as-builts

Finding: The initial design review occurs prior to the formal design documents during the site assessment phase. 1A Diagrams showing the general layout of a school, including all additions and deletions, are the initial important documents. In 1990, during an internal review of FP&C, it was discovered that 1A's did not exist for SFUSD. Soon thereafter, a push was made to develop 1A's. Our preliminary review of the 1A's shows that these are not being kept current and updated as changes are made.

The next level of detailed drawings are referred to as "as-builts". These detailed plans and specifications should reflect the current status of each school facility and become the starting point for new additions or deletions. Again, during our preliminary review of the as-builts, we found them disorganized and oftentimes not current. Due to deficiencies in the initial site assessment phase caused by inaccurate 1A's and as-builts, we found the process ineffective, leading to change orders due to unknown site conditions by the contractors.

Recommendation: The accuracy of 1A's and as-builts is an important contributor to the overall accuracy of new design details. We recommend improvements to the A1 and as-built drawing files by assigning one person to that function and ensuring that they are updated after each project. We also recommend a regular review of the files by B&G to ensure that their changes are also incorporated. We recommend more detailed site surveys be conducted utilizing checklists to ensure full coverage. These checklists should include a review of existing engineered systems (i.e. electrical, mechanical and structural) by a qualified inspection engineer.

The requirement for submitting as-built drawings is a contractual obligation for the general contractor; however, it tends to be one of the last items requested and often the individuals that could develop the most accurate as-builts are off the project. This often leads to general contractors fulfilling their contractual obligations but submitting an inferior product. To ensure that the District receives accurate as-builts, we recommend that prior to the monthly pay request, the inspector should review and sign-off that as-builts are being kept current per specifications. In addition, final retention should never be released until final as-builts are received and properly marked on reproducible paper.

District Response: *This recommendation is currently being implemented. The 1A's have been scheduled for annual evaluation and updates, and contractors are not relieved from their contractual obligations until they have provided the District with accurate as-built drawings upon completion of the project.*

4. Design Review Process - Sign-offs

Finding: We noted that the PM would ensure an internal review of drawings and specifications by issuing a memo to the head of architectural design, asbestos control, construction management, electrical engineering, fire safety coordinator, mechanical engineering, and B&G, then receiving their signature prior to advertising/bid. The PM's also ensured that the plans were approved by DSA and signed-off. Generally we did not notice a sign-off or review by the school principal or an independent third party (peer review or constructability review). We noted an exception on the Ben Franklin contract with Arntz Builders, for which the plans and specs were reviewed by Max Management Cost and Time Management. Max commented on phasing, site logistics, parking, coordination with school staff, etc. It appeared that the PM made the decision to solicit input from Max on his own (thus, it was not District policy to do that).

Recommendation: We recommend that the design review process included in the FP&C Project Flow Chart be followed, and should be updated to include review and sign-off by the school principals for projects that have major school impact. The site principal should be directly involved in working with the architect to establish "educational flow", curriculum needs, and desired finishes for major renovations. Once the plans and specifications are completed, the principal should give them a final review and sign off. District management needs to completely monitor this input to maintain budgetary control. For minor projects or projects that are being performed in accordance with District standards, the principal should receive project descriptions for information. Once it is agreed on how to proceed, the principal should comply with the decision, and let facilities management proceed with the change.

All large projects should include a peer review of the plans and specs, mainly for coordination checks. This could be done in-house by the Design Group (if an outside A/E is used) or by an outside firm, if the design is being performed internally. We also recommend a constructability review be performed by an independent contractor or construction management firm for major or complex projects.

***District Response:** This recommendation is currently being implemented. All large projects include a peer review of the plans and specification. In addition, constructability reviews are performed by construction management firms for the major, complex projects.*

5. Design Review Process - State Approvals

Finding: Requirements to send plans to the State for review is inconsistent and confusing to many FP&C staff members. Some staff members question the requirement in general and others are concerned that the procedure is overkill.

Recommendation: We recommend that FP&C issue a formal procedure to all staff members to alleviate the internal confusion. All plans which modify the structural design of a building which cost more than \$20,000 must go through ORS/DSA, by law. Projects under \$20,000 can be certified by the architect/engineer. In the case of SFUSD, with licensed architects and engineers

on staff overseeing the entire design process plus the additional constraint of having to comply with strict San Francisco building codes, a strong argument can be made that the additional burden in time (it often takes four months or more for ORS plan checks) and money to receive approval from ORS has passed its importance, (especially if the District implements peer review of plans prior to bidding as recommended above). The problem is that it is required by law at the present time. We believe that a significant enough amount of time and money is involved here to warrant further investigation into getting the requirement reviewed and possibly amended.

***District Response:** This recommendation is currently being implemented. All projects that modify the structural design of a building, involve revisions to site accessibility or fire protection systems, or which cost more than \$20,000 must be reviewed by the Department of the State Architect (DSA).*

V. ADDITIONAL RECOMMENDATIONS

1. Redefined role for CAC

Finding: We found concerns from various key individuals regarding the role and effectiveness of the Citizen's Advisory Committee (CAC). The concerns focused on how to improve its involvement and increase its effectiveness. The CAC has a position in the Proposition A program organization (see following page) but does not have a clear understanding of its role, nor do others on the project have a consistent understanding of the CAC's function.

Recommendation: We recommend that the role of the CAC be reviewed and redefined if necessary so that the Committee has a renewed sense of their role. The most successful CAC's at a statewide or national basis tend to be involved in global program issues. Citizen's Advisory Committees can be very beneficial if they are given clear direction. They can help in establishing District standards, assist in an oversight role, but should be steered away from being site specific or micromanaging any processes. If the CAC becomes an "extension of staff" for District Staff, they can fall into the trap of micromanaging, which creates a great deal of frustration and aggravation for the Committee and for the people it was intended to help. In addition, it is nearly impossible for this CAC (SFUSD) to visit and review all sites, thus their preferred role of assisting in the establishment of the model school criteria, reviewing priorities to attain the model school criteria on a site by site basis with staff, and to encourage local participation in each school (as examples of what could be given as their "clear" direction) should be the objective of this CAC.

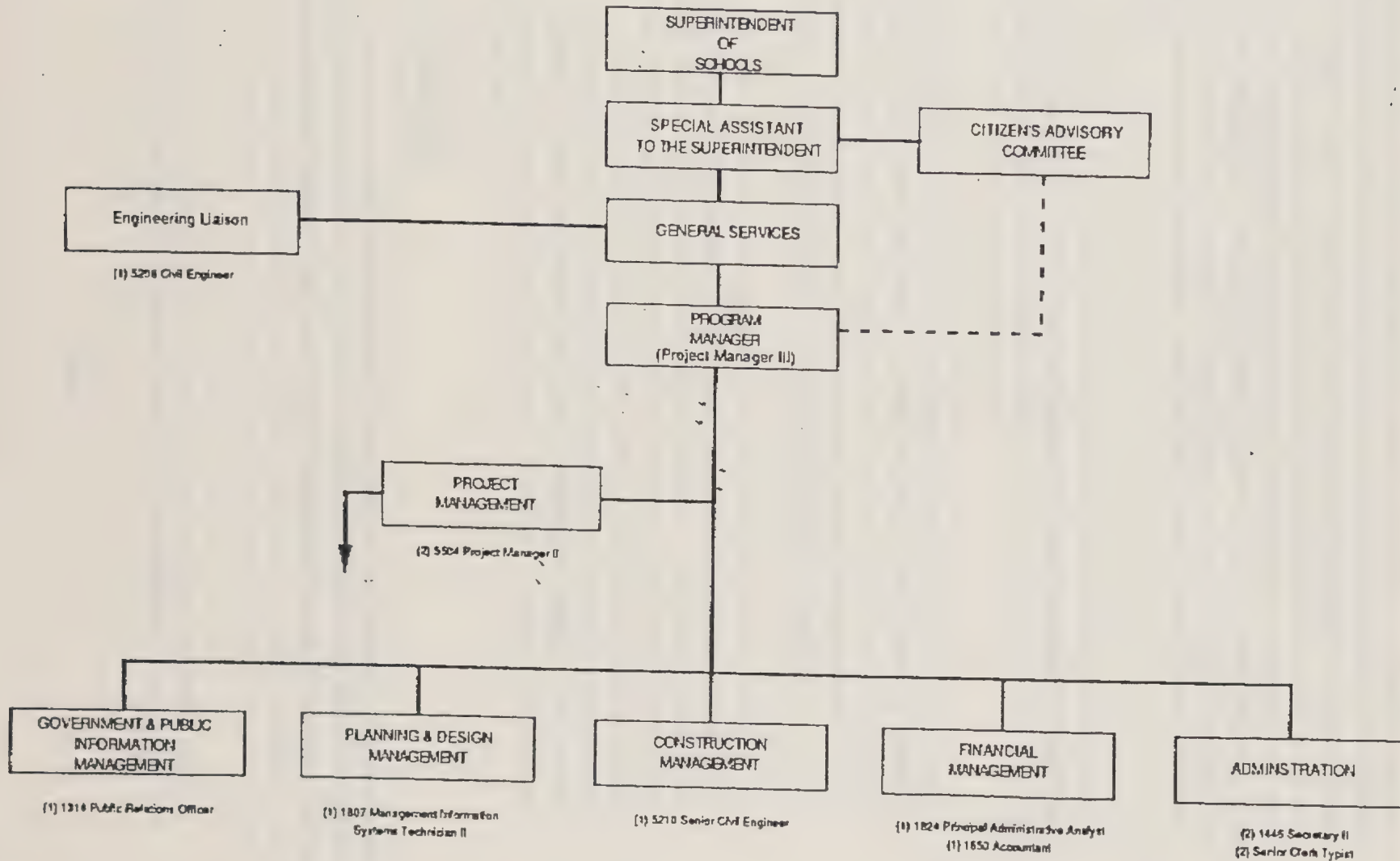
We understand that the Model School concept was originally tried when Proposition A funds became available; however, it tended to concentrate funding on a few sites. We believe that the model school concept should be tried again, this time with input from the CAC and other school districts. The idea is to believe and focus on the proposition that there exist certain, definable facility characteristics that can be achieved and maintained with the right amount of funding. Having a defined set of criteria (a model) provides an impartial guide against which all projects can be compared.

***District Response:** The Superintendent is currently reviewing the composition and role of the committee and will make recommendations in the near future.*

2. Contractor prequalification process

Finding: SFUSD does not have a strict contractor prequalification process - the only requirements are to be bondable, insurable, agree to pay prevailing wages, and be responsive (a responsive bid is one that has been received timely, properly filled out including applicable attachments, with an original bid bond from a surety admitted with the California Insurance Commissioner) and responsible (a bidder who has the necessary experience in the class of work to be performed, and the ability, equipment and financial resources to perform the work satisfactorily within the time specified). There is also a requirement (prior to receiving approval from the School Board) to not be under investigation by SFUSD for prevailing wage violations, but it has never been enforced to our knowledge.

PROPOSITION "A" PROGRAM ORGANIZATION



The contract award process was handled well. The contract is always awarded to the lowest responsive bidder. We did not notice any bid protests by bidders on contracts that we reviewed.

Recommendations: We recommend prequalifying general contractors and specialty contractors for frequently performed work based on past performance and financial strength. Prequalified contractor lists would be used to obtain bids where possible, but especially for large or complex projects. Other public agencies (e.g. University of California and several counties) are using performance-based prequalification criteria successfully. Weeding out poor general contractors (described as those that perform over budget, behind schedule, don't pay prevailing wages, tend to be "change order" oriented, etc.) through a "prequalification process" is difficult under current law; however, there are some legal methods being utilized by other School Districts that have similar concerns.

As part of the bidding process, we also recommend mandatory attendance at pre-bid meetings which includes a site walk. This provides the contractors with better information, which should improve their bid. It also assists the contractor and District in recognizing obvious exceptions to the plans (which started with the owner's as-built set).

***District Response:** The construction management firms currently under contract with the District have performed a peer review of the District's general conditions, as well as proposed modifications to pre-qualify contractors primarily for the new school projects. The documents are currently being reviewed by the City Attorney's office for risk, liability, and enforceability assessment.*

Although there are some good arguments for pre-qualifying bidders (weeding out poor performance, over budget, behind schedule, change order orientation, etc.), there are also reasons for not pre-qualifying bidders. Many quality contractors that may not get pre-qualified would not be able to bid. Also, the legal methods for the prequalification process expose the District to potential liability based on the legal definitions for responsible and responsive. Small minority- and women-owned business enterprises may find it difficult to qualify. The District will continue to work with the City Attorney's office in order to finalize an enforceable policy.

3. Extended Warranties

Finding: We found an extended warranty option (3 years instead of 1) issued by the mechanical subcontractor for heater installation to be a good investment at the individual schools we studied. In cases where an extended warranty is in place for new equipment, the school principal calls the supplier directly for maintenance, saving the cost of B&G and receiving prompt attention from the supplier.

Recommendation: We recommend that the District consider extended warranties or maintenance options for most major equipment items, if it is cost-effective. This would also

relieve B&G from some routine work for a certain period. One option could be to ask for the cost of the extended warranty as an alternate to the base bid when bids are solicited.

District Response: *This recommendation is currently being implemented. The District anticipates that extension of warranties will be cost effective for most major equipment. Modifications to bid specifications will allow the department the option of extending warranties to ensure the appropriate cost savings.*

4. Request for Clarification Logs (RFC's)

Findings: Most project teams reviewed the RFC logs during weekly review meetings which we agree is a good policy. In analyzing the contents of the RFC's, it was our finding that most of the RFC's were appropriate and genuine clarification requests from the contractor; however, we did not believe that all of them had to be forwarded to the A/E for answer. While most RFC's were turned around in a few days, we noticed some that were delayed for over a month (due to requesting clarifications from manufacturers).

We found that, for the most part, the PM's simply acted as a conduit to the technical staff instead of attempting to answer the RFC's themselves. Our experience in the industry is that PM's should have more involvement in terms of assessing the RFC's significance and impact in terms of cost and schedule impact to the project.

We also noted that most of the RFC logs were handwritten and did not always contain key information such as date of RFC receipt from the contractor, date of transmittal to the A/E, date of return from the A/E, and date of return to the contractor. We did view a new RFI log form issued by FP&C that contained this information. Unfortunately, the majority of the construction under Proposition A that we reviewed was prior to this date.

Recommendations: It is important for SFUSD and their agents (architects/engineers) to be fully aware of the potential contractual liabilities created by each RFC and respond in a timely and appropriate manner to avoid delays or potential delay claims from contractors. We recommend that responses to all RFC's be given in no more than 7 days. The PM's should monitor the movement of the RFC's among the various parties, review the log routinely, and make every effort to expedite processing.

The PM's should have the skill to search contract documents and resolve many of the RFC's, rather than forwarding all RFC's to the A/E, and we recommend that this be incorporated into the Procedures Manual that the District should prepare. If it is possible to resolve RFC issues via a telephone call or a simple fax sketch, this is recommended. There is no reason to issue unnecessary paperwork or to involve people in the response that are not required. RFC's deserve priority treatment by the PM since they represent a constant reflection of information, guidelines and directives for the proper performance of the work activities.

While manual logs are acceptable, we believe that a computerized version is easier to control and update, and most have a critical status feature based on a proposed assigned completion date. The PM should consult with the contractor to ensure clarity and insist on revision, if necessary.

District Response: *This recommendation is currently being implemented. The new RFC log issued by FP&C contains the appropriate information.*

5. Change Order Process

Findings: We noted that change proposals originated from many different sources - the District, RFC's from contractors, field conditions, etc. The District's change proposal form contains check boxes to enable each potential change order to be originator-identified. Unfortunately, this box was checked less than 20% of the time. When it was determined that the change proposal would become a change order, the PM would fill out a change order summary page. It is necessary to state the reason for the change on this form; however, we noted that most statements were vague as to the cause of the change and we were not able to determine which party was responsible for the change in most cases. In a few cases, we saw a PM challenge a contractor to show why the potential change was not originally included in the contractor's bid, however, this was a rare occurrence. Since the changes were not tracked by cause, we could not determine how many were attributable to errors and omissions and therefore chargeable to an A/E. The first step in recovery of money is to properly document what is happening, which we did not find to be the case on the sample projects.

We also noticed that potential change orders were not resolved in sequence. We did not find a formal procedure to finalize the cost of change orders. We did not notice any independent cost estimates prepared by an outside source or by the Architect as a basis for negotiations with the contractor. With rare exception, our review revealed that contractors were not addressing the issue of time extensions with proper backup and schedule impact analysis. Many of the change proposals were submitted with time extension demands shown as "unknown", or with arbitrary, unilateral extensions to completion date.

For the schools we reviewed in more depth, we found that most of the change order work was being conducted before final approval due to schedule considerations. Our review showed that most of the work being done by contractors proceeded on "good faith" because the approval process is so lengthy.

Recommendations: We recommend that all change orders be identified as to responsible party, and that the reason for the change be documented. It should be recognized that a change order is really a contract modification and forms a significant part of the contract records. This is especially true if in the future any aspect of the work becomes a dispute. For changes that result from deficient actions of architects or contractors, the District should study the possibility of recovering money under errors and omissions or backcharge clauses of contracts.

We recommend that each potential Change Order be numbered and resolved in order. This approach prevents all parties from skipping over a difficult item. These difficult items have a

tendency to wait until the end of the project when the appropriate parties are no longer around and end up costing the District more to resolve than they would have originally.

For significant change orders, both the PM and A/E should examine each change to ascertain if it represents a change to the contract. The PM should draft a justification record describing why the change is necessary. For complex change requests, the District PM should obtain an independent cost estimate as a check of the contractor's estimate. An independent cost estimate can be used to force the contractor to develop a detailed estimate reflecting a true cost structure.

If the contractor's request for a change order is denied by the PM, a dispute file should be opened, in the event the issue develops into a claim. The PM should also settle the time issue along with the cost issue when the change order is approved. The PM should analyze the impact of change orders on the contractor's schedule, review the contractor's monthly progress updates, and take the necessary steps to deny or grant time extensions if any may be required. All time extensions must be specifically documented to include all costs.

We recommend that the change order approval process be held to strict time deadlines so that the contractors do not have to work without formal review or approval. We also recommend that minor change orders be approved by the Project Manager without further review; the District can define "minor change orders" based on the size and complexity of the project.

***District Response:** This recommendation is currently being implemented. The Project Manager's Procedure Manual requires project managers to identify the responsible party, the numerical order of, and the disposition of change orders.*

6. Payment Requests

1. Payment request forms

Finding: Contractor payment requests were submitted to the PM and Inspector for verification and approval usually using the contractor's payment request form. The forms ranged from a AIA form to a handwritten request on the contractor's letterhead. We noted that the final payment request consists of a separate document from the monthly requests and is more formalized due to the increased contractor performance requirements. For example, there are check boxes verifying that a final inspection took place, all contract close-out documentation has been turned over to the owner, all contractor ID badges and keys have been returned to the Owner, and a Notice of Completion has been filed.

Recommendation: While we do not believe that it is necessary to insist that contractors utilize a standard District payment request form, we do believe that the PM's should review the contractor's format with their finance/accounting staff prior to initial issuance and ensure that it contains all required information. This will also ensure that payments are not held up due to format.

We note that the District now has a meeting after contract award and prior to contractor submittal of the first invoice. At the meeting, the contractor and any of their subcontractors who wish to attend are advised by the Project Manager and District accounting regarding the form of invoices, procedures for submittal, and timeline for District review and payment.

2. Percent complete verification

Finding: We noticed several instances where the inspector sent back a contractor's payment application because he felt the percent complete was overstated. However, in most cases, the Schedule of Values (the breakdown of the work for billing purposes) was inadequate and in some cases, only one item, i.e. the total value of the contract was shown. Sign-offs are required from the PM, the Inspector, the Inspector Supervisor, the A/E, and the SFUSD Contract Officer. In addition, a separate document entitled "Certificate of Acceptance and Authorization for Final Payment" requires Board of Education approval and acts to verify that the work was fully and satisfactorily completed in accordance with plans and specifications, there are no liens on the property, and the revenue source to charge work against.

Recommendations: Overstatement of percent complete usually occurs because the Schedule of Values is front-end loaded or does not accurately reflect the scope or timing of the work. The Schedule of Values should be tied to the contractor's schedule. We recommend that, at a minimum, the contractors are required to break the work down into 3-10 items for proper verification.

District Response: *This recommendation is currently being implemented. The Project Manager's Procedures Manual currently requires the project managers in conjunction with the architect and project inspector, to verify the appropriate percent completion of their project. Additionally, the Procedure Manual requires the project manager to work with the architect of record, project inspector, and contractor to provide the District with a Schedule of Values that can be utilized to verify the percent of the project completed.*

7. Schedule and contract management

1. Contract requirements

Finding: While contractor schedules were found in the files, the formats and information details varied widely. In some cases the only scheduling information would be contract start and planned completion date. In other cases, the contractor would provide a complete CPM schedule with logical relationships between the various activities. As previously reported under Change Orders, we did not notice any detailed schedule delay analysis due to change orders, so we were unable to determine if the contractor's were able to identify the impacts from changes on their schedule and work progress. We did not find a scheduling clause in the contract agreements.

Recommendation: We recommend that the contract documents clearly spell out the scheduling requirements and they must be enforced monthly. Initially, the type of software, the number of

benchmark items, format (barchart, CPM, etc.), updates, etc. should be spelled out in the general conditions of the general contract. Monthly progress payments should be tied to the general's successful completion of these requirements and monthly reviews of the general's overall schedule (and catch-up schedules, when they fall behind) should be a critical part of the first weekly meeting of each month.

District Response: *This recommendation is currently being implemented. Contract documents require completion of a CPM schedule. The Project Manager's Procedure Manual requires that the project manager review the general contractor's overall schedule monthly.*

2. Liquidated damages

Finding: We found liquidated damage (LD's) clauses in every major contract. However, we did not find a single case where the contractor was found to be deficient in his contractual duties and the LD's were enforced. In all cases, the LD's would only be assessed on the non-attainment of the completion date, not milestone dates.

Recommendation: We recommend that liquidated damage provisions in contracts be enforced, or at least used in negotiations with contractors who are late in completing their work. It should be remembered what the true purpose of liquidated damage clauses are in contracts. It is not to enrich the owners by punishing the contractors - it is to ensure completion by a certain date. While some school districts use milestone LD's successfully, we recommend continuing the present system of completion date LD's.

District Response: *This recommendation is currently being implemented. The District has every intent of enforcing liquidated damages or using liquidated damages in negotiations with contractors to ensure project completion.*

3. Payment of prevailing wages

Finding: We found numerous complaints from various parties (inspectors, other general contractors, union officials, architects, etc.) of violations by contractors regarding the payment of prevailing wages. It appears that violations are occurring and not being caught leading to some non-bidding of SFUSD work by quality contractors, possibly sub-standard work by less skilled workers, and a sense of frustration that something should be done by many involved in the process.

Recommendation: We recommend a review by the District to ensure that certified payrolls are submitted and that prevailing wages are being paid. As a minimum, the following should be done: 1.) clearly stating in the contract documents that the contractors must submit with every payment request certified payroll documents for the month and 2.) spot checks of detailed backup for all significant contractors.

Our understanding is that the District has now assigned a person to carry out this recommendation, and is also developing a program to emphasize the monitoring process to vendors.

District Response: *This recommendation is currently being implemented. The District has an individual assigned to ensure that certified payrolls are submitted and that prevailing wages are being paid. The District will be expanding this component to better address future work volume.*

8. Quality control and inspection

1. Reporting lines for inspectors

Finding: There is confusion regarding the role, responsibility, and reporting lines for the Inspectors. Organizationally within FP&C, the Inspectors report to the project managers, which can lead to a conflict of interest. However, functionally they should become the eyes and ears of the District, independent of any individual involved in project execution. The design department at FP&C is separate from the project management group.

Recommendation: We recommend that the Inspectors report to the Design Department within FP&C, not the project management group. Under Part 1, Title 24, Section 4-219 of the State Building Code, it states: "The project inspector as an agent for the owner shall act under the general direction of the architect or registered engineer and under the supervision of the enforcement agency." It further states under Section 4-217 "The architect or registered engineer is responsible to the owner and to the enforcement agency to see that the completed work conforms in every material respect to these regulations and the approved plans and specifications. All architects and registered engineers having responsibility for observation of the work of construction shall maintain such personal contact with the project as is necessary to assure themselves of compliance in every material respect with the approved plans and specifications and shall submit verified reports to the enforcement agency. The architect or registered engineer in general responsible charge shall be responsible for the timely submittal of the required verified reports from the project inspector, the contractor and the other architects and engineers who have been delegated responsibility for a portion of the project."

District Response: *At this time, it would be difficult to implement this recommendation.*

Coopers & Lybrand Response: *The District's justification for the difficulty in implementation did not directly address the recommendation.*

2. Inspections by the architect of record

Finding: The architect of record did not always visit the site on a weekly basis and relied heavily on the inspectors. Because of this lack of direct knowledge of the construction process, the inspection reports were often "rubber stamped" by the Architects. This leads to the general

feeling at the site that the inspectors, not the architects, are responsible for quality control and adherence to plans and specifications.

Recommendation: The architect of record should visit the site on a minimum of a weekly basis to tour the site and be present at the weekly construction meeting.

District Response: *This recommendation is currently being implemented.*

3. Substitution requests

Finding: We found that substitution requests (and their potential impact on the "quality" of the final product) take up a great deal of time during construction administration.

Recommendation: We recommend that SFUSD develop a formal, tough substitutions policy similar to the following:

1. Bid specifications should clearly state that all substitution requests must be submitted to the owner/architect for review and approval no later than the first 10% of the contract time (i.e. 20 days for a 200 day project).
2. A substitution request form needs to be prepared. On this form the contractor must clearly state what advantage approving the requested substitution has for the owner. The advantage could be financial and/or better product.

District Response: *This recommendation is currently being implemented.*

4. Standard design specifications

Finding: In 1988, there were no District design standards. The current "Project Standards Guidelines" originated as a joint effort by FP&C and B&G. The first edition was issued in 1991, the second in 1993, and the third is due out soon. We found that the procedures and policies concerning standard design specifications for items such as windows, doors, locks, painting, etc. are not clear to all parties.

Recommendation: We recommend that the District review and clarify their standard specifications. The B&G Department should take the lead in establishing District established specified products and acceptable alternatives when appropriate, since they are the recipient of the constructed facility. The FP&C Design Department should be also be involved since they are ultimately responsible to accept the final products.

District Response: *This recommendation is currently being implemented.*

9. Final Acceptance and Job close-out

1. Final acceptance

Finding: We found instances of projects being accepted by all parties only for the school principal to discover defects in construction that were not discovered during the final inspection and acceptance procedure. These defects included leaking skylights and roofs, inadequate air flows to zones, and malfunctioning fire alarms.

Recommendation: We recommend that the District adopt the final acceptance and approval procedures as outlined in the AIA General Conditions. Basically, the contractor (and subcontractors) must notify the owner and architect in writing when they believe that they have met their contractual obligations. This forces the general contractors and subcontractors to check their work prior to final inspection and punch list activities. The architect of record (and engineers) then perform their final review and prepare the punch list, which should be minimal if the contractors have policed themselves properly. It is important for the architect and engineers to properly test and inspect any items that affect the building's ability to be used for its intended purpose or the Certificate of Completion cannot be issued by the architect.

District Response: *This recommendation is currently being implemented. The District currently requires the Project Managers to utilize final acceptance and approval procedures as outlined in the AIA general conditions. In addition, the District will not authorize the issuance of a Certificate of Completion until all final inspection and punch list activities have been completed.*

2. Turnover of documents

Finding: We found that contractor's met their contractual obligations by turning over O&M manuals, as-built drawings, warranties, and lien releases, however, the information often does not end up where it will do the most benefit. For example, we did not find O&M manuals or warranty information at any of our three sample schools and as-built drawings are not being cataloged and monitored properly for effective use by the Design group on their next project.

Recommendation: We recommend that contractors provide sufficient copies of the O&M manuals and warranties to allow a set at the school.

District Response: *This recommendation is currently being implemented.*

3. Final job report

Finding: There is currently no requirement for a final job report by the District.

Recommendation: We recommend that the PM prepare a final job report on all significant jobs. Final job reports, if structured properly to answer specific questions, not take a lot of PM time, and provide for "lessons learned", can be a valuable source of feedback.

District Response: *This recommendation is currently being implemented. The Project Manager's Procedure Manual requires that the project managers prepare a final job report.*

10. Maintenance and Operations

Finding: The current B&G group at SFUSD is comprised of a number of craft specific shops, such as electrical, sheetmetal, mechanical and plumbing, carpentry, and painting,. Another group is responsible for hazardous materials detection and mitigation. These shops are frequently engaged to work on smaller projects where it is not practical or economical to bid the work to outside contractors. Among the Proposition A work categories, B&G staff has been particularly involved in heating projects, electrical work, and toilet repairs. A smooth running, efficient M&O group is essential for a successful facilities management program. A proactive, regularly scheduled maintenance program of major equipment and materials in schools can save substantial money on new capital spending. Also, B&G input to the design process, to standard design specifications, and to substitutions requests by contractors is extremely important to FP&C. Primarily because the FP&C group and B&G are located in different buildings, we found the interface and communications between the two groups to be disjointed and inconsistent. While FP&C has confronted some of its organizational issues and is taking corrective action on strategic planning issues, we heard of low morale, excessive work loads, poor scheduling of work, and a standard routine of "putting out fires" in B&G.

Recommendation: We recommend a separate analysis of the B&G group. The analysis should include the prospect of a long-term (5 year) maintenance and operation plan for each school. While our preliminary investigation found that B&G does have an existing plan and strategy, it needs revision and updating.

District Response: *No response by the District.*

VI. REVIEW OF THREE SAMPLE SCHOOLS

The three schools chosen for in-depth study as part of this operational review were Commodore Sloat Elementary, Benjamin Franklin Middle School, and Balboa High School. These schools were considered representative of the 128 schools involved in the Proposition A funding. They were chosen because they represented schools from each major category (elementary, middle, and high), they had extensive work done using Proposition A funds, and there were still individuals in Facilities Planning and Construction (FP&C) who had direct knowledge of these projects.

The following table summarizes the original estimates (Yellow Book estimates derived in 1988 by FP&C) and the actual costs (through 4/17/95) utilizing 1988 Proposition A funds. It is important to note that the Totals from the Yellow Book are not directly comparable to the Actual Costs because they do not include the same cost categories:

SCHOOL	YELLOW BOOK	ACTUAL COSTS
Commodore Sloat Elementary	\$403,000	\$1,933,000
Total All Elementary	\$38,000,000	\$34,044,000
Ben Franklin Middle School	\$889,000	\$2,025,000
Total All Middle Schools	\$22,000,000	\$14,400,000
Balboa High School	\$4,294,000	\$1,365,000
Total All High Schools	\$30,000,000	\$21,628,000
TOTAL	\$90,000,000	\$75,000,000

The 1988 Yellow Book estimates were schematic planning estimates for the purpose of providing order of magnitude costs, not final cost estimates, and included all design and administration costs. This made it very difficult to track actual costs against the estimates since actual costs are broken down using different categories, into hard construction costs and soft design and administration costs. Because of this, and because of the major changes that occurred to priorities and scope in the early years of the Proposition A program, it is difficult for us to comment on planned vs. actual costs and whether or not deviations from plan were managed effectively. The Yellow Book estimates represent only the beginning of an evolving, difficult planning process.

The participants we interviewed who were involved in the Yellow Book estimating process agree that use of the recently completed project management software has improved the estimates included with the current 1994 Proposition A Implementation Plan. The same participants are much more confident of the current Capital Asset Management Plan (CAMP) process and the associated needs assessments, cost estimates, and prioritization scheme.

COMMODORE SLOAT ELEMENTARY SCHOOL

50 Darien Way San Francisco, CA. 94127
Principal: Lida Opalenik

Building Size: 59,300 sq.ft.
Site: 4.48 acres

1988 PROPOSITION A FUNDS - PLANNED V ACTUAL

TASK	YELLOW BOOK	ACTUAL COST
HVAC Upgrades	0	\$141,000
Painting	\$46,000	included with roof
Roof replacement	\$139,000	\$1,418,000
Site Improvements	\$192,000	\$306,000
Toilet Upgrades	\$26,000	\$68,000
TOTAL	\$403,000	\$1,933,000

Overview

The original Commodore Sloat School was built in 1922; however, most of the original school was demolished in 1973 and replaced with new construction. The only part remaining from the original school is the auditorium. The new construction and the renovation of the auditorium were completed with funds from a 1973 bond measure for earthquake rehabilitation. From 1974 to 1988, no major maintenance or construction occurred at the school.

Proposition A Funds

In 1988, Commodore Sloat School was in need of repair. The yard was full of sink holes, there were water leaks, plaster was falling off the walls, toilets leaked, and the school needed painting. \$403,000 was allocated based on priority allocation from the Yellow Book assessment. However, after additional assessment and prioritization, over \$1.9 million was spent. From 1988-93, with the use of Proposition A funds, the school was extensively repaired and modernized. The bulk of the work was accomplished under a \$1.4 million contract to Arntz Builders which included roof replacement, new heating units installed on the roof, remove and replace dry rotted areas, painting, and new site work.

Site Visit

We toured the school on Thursday, May 18th. The school principal gave us an overview of the condition of the school and discussed her impressions of the design, construction, and maintenance process at SFUSD. Two problems that have occurred since construction was completed in 1993 have been from a leaking skylight and problems with the rooftop heating units; these problems have been repaired under warranty. Overall, the school appears in very good condition.

Review of Construction Documents

While there were separate contracts let for site work, HVAC upgrades, and toilet upgrades, the bulk of the work was performed under one general contract with Arntz Builders entitled "roof replacement". Arntz was the low bidder out of 4 bids received at a cost of \$1,324,416. There were 8 contract modifications, both adds and deducts, which resulted in a final cost of \$1,305,511. The most significant change was a \$91,384 deduct for work not done which was originally included on a unit price basis. Other miscellaneous additions included the repair and replacement of wood doors and frames that were not accounted for in the bid documents, a new flagpole, additional compensation to the contractor for stopping work during tests, new carpeting for the lobby and principal's office, and the relocation of walkway light fixtures. The site work contract to Lowrie Paving was originally bid at \$234,000 and completed at \$256,000 with the changes primarily due to increased drains required under the playground. The remaining contracts were completed with little or no changes.

Comments

Based on our tour and our discussions with the project participants, the school is much improved from its previous state and the Proposition A money was well spent. The extended warranty for the heating units has paid off in time and money. The school principal contacts the supplier directly when there is a problem instead of going through Buildings & Grounds (B&G). Unfortunately, the warranty expires soon, and she will have to call B&G for future problems. The one year warranty on the skylight work has also paid off. The contractor has been out numerous times trying to locate the exact source of the skylight leak and it appears it is finally fixed. Again, the principal has been calling the supplier directly.

We noted that the playground originally had large sinkholes due to inadequate drainage which was repaired in this renovation. However, if the drain lines are not unclogged periodically, the same problem will occur again due to the underground springs in that locale. In addition, it was pointed out that a wrong part was installed recently on a new boiler at the school. We believe that both of these issues and numerous others could be alleviated if operating and maintenance manuals for the new equipment and materials (i.e. heaters, boilers, carpeting, doors, windows, etc.) were available at the school. We recommend that these be made available to the school. We would also recommend extended warranties for major equipment items such as heaters and boilers, if available. This will also cut down on the workload of B&G during the warranty period.

BENJAMIN FRANKLIN MIDDLE SCHOOL

1430 Scott Street San Francisco, CA. 9415

Principal: Mrs. Meltesen

Building Size: 164,000 sq.ft.

Number of Students: 650

Site: 3.2 acres

1988 PROPOSITION A FUNDS - PLANNED VS. ACTUAL

TASK	YELLOW BOOK	ACTUAL COST
Asbestos abatement	\$96,000	\$176,000
Elect/seismic/HVAC	0	\$49,000
Leroy Greene modernization	0	\$1,580,000
Roof replacement	\$22,000	0
Science lab upgrades	\$50,000	0
Site improvements	\$112,000	\$220,000
Toilet upgrades	\$609,000	0
TOTAL	\$889,000	\$2,025,000

Overview

The original Benjamin Franklin School was built in 1913. In 1932, some alterations to the original building occurred and the girl's gymnasium was added. In 1934, seismic upgrading was added and in 1954, using 1948 Bond funds, a boys' gymnasium was added, as well as some rehabilitation to the original building. With the exception of minor rehab work in 1965, the last upgrade prior to the work covered by Proposition A funds occurred in 1954.

Proposition A Funds

In 1988, Benjamin Franklin Middle School was in need of modernization and repair. The yard was damaged due to diverted underground water from Hamilton Park, the heating system needed replacement, the roof and numerous windows leaked, most doors needed replacement, the exterior gates and fences were deteriorated, the building structure was cracking and failing in numerous places, interior and exterior lighting was inadequate, there was inadequate handicapped access, and the school needed painting. From 1989-93, with the use of Leroy Greene funds, Proposition A funds, and other funds, the school was extensively repaired and modernized at a cost of \$6.5 million, of which \$2.0 million came from Proposition A funds.

The bulk of the work was accomplished under a \$5.0 million contract to Arntz Builders which included extensive seismic upgrades, a new boiler and heating system, roof replacement and roof drains, new lighting and electrical upgrades, painting, and new windows. Separate contracts were let for site work and seismic upgrades to the girls' gym. The original contract with Arntz was for \$3,385,000. There were 12 change orders primarily caused by the 1989 earthquake. This necessitated use of portable classrooms, upgraded doors and hardware (new building standards),

repair of damaged walls and ceilings, replacement of underground gas lines and electrical conduit, use of temporary partitions, and additional fire sprinklers.

Site Visit

We toured the school on Friday, May 19th. The school principal, the inspector of record, two asbestos removal workers, the chief custodian, and the project manager gave us an overview of the construction process and their impressions of the design, construction, and maintenance process at SFUSD. The school is quite old, and the new construction (new heating pipes, toilet partitions, locker room modifications, playground, painting, etc.) stands out from the old. The principal, her husband, and the assistant principal were involved in the construction process by attending weekly construction meetings, questioning the use of certain materials (paint, tile, door locks, etc.), questioning the accuracy of air balance reports, and continuous review of the inspection process. The improvements funded by Proposition A have improved the school, especially the new heating system with its associated Energy Management System. Overall, the school appears in good condition, considering that parts of it were constructed over 80 years ago.

Review of Construction Documents

It was not possible to segregate the specific funds associated with Proposition A for the construction program since they were intermingled with funds from other programs. We analyzed the largest contract, let to Arntz Builders. Arntz was the low bidder out of 3 bids received at a cost of \$3,385,000. There were 12 contract modifications, which resulted in a final cost of approximately \$5.0 million. The most significant changes were a \$280,000 add for upgraded doors and hardware due to new code requirements, a \$150,000 add for a new heating system for the Boys' gym, a \$100,000 add for fire sprinkler modifications, and extensive repairs due to the Loma Prieta Earthquake.

We noted that the design process was led by a structural engineer, not an architect as is customary, due to seismic considerations. Based on our review of project correspondence and from discussions with participants in the project, this caused an over-emphasis on structural problems and procedures with a corresponding relaxed attitude toward architectural coordination and timely RFI reviews.

Comments

Ben Franklin was a school that greatly benefited from Proposition A and other funds in the last few years. The school received all the upgrades it requested in 1988. While still an old school, the improvements are noticeable. Concerns expressed by the principal included statements involving inadequate initial testing for hazardous materials, inadequate involvement from the school in design reviews, a defensive attitude by the inspectors toward questions, and inadequate testing and checkout of the fire alarm system (which is still being tested).

We noted that the playground originally had serious undulations due to inadequate drainage which was repaired in this renovation. However, if the drain lines are not unclogged periodically, the

same problem will occur again due to the underground water streams in that area. In addition, it was pointed out that the school does not have operating and maintenance manuals for the new equipment and materials (i.e. heaters, boilers, carpeting, doors, windows, etc.). We recommend that these be made available to the school.

BALBOA HIGH SCHOOL

1000 Cayuga Ave. San Francisco, CA. 94112
Asst. Principal: Art Wallace

Building Area: 261,700 sq.ft.
Site: 10.3 acres

1988 PROPOSITION A FUNDS - PLANNED VS. ACTUAL

TASK	YELLOW BOOK	ACTUAL COST
Asbestos abatement	\$321,000	\$60,000
Door replacement	0	\$17,000
Electrical upgrade	\$998,000	\$25,000
Fire/life safety	0	\$41,000
HVAC upgrade	\$631,000	\$120,000
Library expansion	\$100,000	0
Painting	0	\$28,000
Renovation	0	\$189,000
Science lab upgrade	\$261,000	0
Site improvements	\$441,000	\$251,000
Toilet rehab	\$1,144,000	\$335,000
Window sash replacement	\$398,000	\$299,000
TOTAL	\$4,294,000	\$1,365,000

Overview

The original Balboa High School was completed over several years. The first section was completed in 1928 and consisted of the main academic building and shop buildings. Two years later, the gymnasium and an addition to the shop wing was added. The four story academic building, the auditorium, and the athletic fields were completed in 1931. All of the building structures at Balboa High School consist of reinforced concrete. Using 1956 Bond funds, the library and homemaking rooms and other minor modernization was accomplished, however, no major rehabilitation or major repairs were done to most areas in over 60 years prior to the repairs performed with Proposition A funds.

Proposition A Funds

In 1988, Balboa High School was badly in need of repair. Water pressure was low due to corroded pipes, lighting was poor, windows did not operate, science labs lacked critical safety features such as eyewashes and fume hoods, heating was poor or non-existent, and the grounds were wet at most times due to an underground stream. While it was slated for extensive repairs with Proposition A funds (\$4.3 million), as late as early 1992 there was still speculation that it might be closed due to low enrollment. This caused the originally planned construction to be delayed resulting in only \$1.4 million in construction actually being performed under 1988 Proposition A. There were no large all-inclusive general contracts. The largest contracts included a \$150,000 contract to Trenery Building for counseling offices remodeling, a \$117,000 contract to Esquivel Grading for site improvements, a \$95,000 contract to Golden Bay Fence for a wrought iron fence, a \$245,000 contract to CT Chow's Construction for toilet rehab, and a \$260,000 contract to Kimel Inc. for window sash replacement.

Site Visit

We toured the school on Thursday, May 18th. The assistant school principal gave us an overview of the condition of the school and discussed his impressions of the design, construction, and maintenance process at SFUSD. One issue that arose was a plumbing subcontractor failing to complete toilet installation work due to bankruptcy and the work is still left uncompleted. FP&C agreed to look into the problem and resolve it, but there was an obvious lack of prior communication. It was also noted that 2 week look ahead schedules are not always given to the principals, thus they are not aware of where construction will occur.

We noted that some of the windows had been replaced while others were old and rotten. It was explained that there was insufficient funds to replace all the windows at that time and the others would be replaced with new Proposition A funds. We also reviewed new drains that were installed under the site work contract to alleviate a flooding problem that solved most of the problem, however, there were still water puddles. FP&C stated that it was a minor drain issue that would be resolved soon. While the girl's toilet rehab work looked relatively good, the boy's toilets were already damaged and the work was left uncompleted due to the subcontractor bankruptcy. A great deal of the aforementioned work involved asbestos abatement that is not visible. Overall, the school has improved somewhat due to Proposition A, however, Balboa remains an old school in need of continuous and extensive repair and maintenance.

Review of Construction Documents

We reviewed the major contracts, primarily completed in 1992-93. The toilet rehab contract with Chow was originally bid at \$210,000 and was completed at \$245,000. The changes were primarily due to unanticipated asbestos removal. The \$95,000 gate contract with Golden Bay did not experience any changes. The counseling office rehab contract with Trenery was originally bid at \$127,800 and completed at \$150,000. The changes were primarily due to unanticipated asbestos and lead removal. The window sash replacement contract with Kimel was originally bid at \$205,920 and completed at \$260,000. The changes were due to the inclusion of exterior

painting to this contract and unanticipated lead and asbestos removal. The site improvement contract with Esquivel was originally bid at \$99,908 and completed for \$117,000. The changes were due to additional drainage requirements based on site conditions.

Comments

Balboa is a large, old, urban school that requires constant maintenance due to vandalism and deferred maintenance. While we did not analyze maintenance costs, it is our assumption that they are quite high due to the deteriorated condition of the facility. Based on our tour, it is easy to see why it is a difficult decision to keep it open, and why all Yellow Book budgeted funds were not spent. However, now that the decision has been made to perform a substantial modernization, we recommend close coordination with the school's Physical Environment Committee to ensure agreement on the prioritization of work, especially in light of the latest CAMP report showing a \$3.34 million allocation compared to a facility need of \$17.94 million, with a overall ranking of 25 out of 132 sites, and in critical physical condition.

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